

Universiti Teknologi MARA

**Traffic Congestion Simulation System
Using Rule Based**

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SUPERVISOR APPROVAL

TRAFFIC CONGESTION SIMULATION SYSTEM USING RULE BASED

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This report was fully prepared under the supervision of the project supervisor, Sir Sulaiman Bin Mahzan. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Computer Science (Hons).

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STUDENT DECLARATION

I certify that this report and the project to which it refers is the project of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledge in accordance with the standard referring practices of the discipline.



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ABSTRACT

There is an increasing of vehicle using the road year by year especially in the main city. This is good because it showing that the economy of that particular city is also increasing. Unfortunately, because of it, the traffic flow in that city may become overload and this is leading to traffic congestion. So, the aim of this paper is to reduce the traffic congestion by designing a smart traffic light control model that can show the flow of traffic in the city. The traffic light should be able to react in real time traffic behavior. This can be done by using rule based so that we can control the traffic light with the sets of rules implemented and we can also control it in the present time. This project is using waterfall model as the methodology and the steps involve including requirement, design, implementation and analysis. For the testing phase, the simulation model is tested whether it will display the traffic according sets of rules implemented. After doing the functionality test, the simulation model showing that it can react efficiently with the current traffic flow in that time and it meet with the objective. In the future, the system can be enhanced by providing more feature such as simulating traffic that have more than one lane. This is good to provide more accurate simulation for that particular road. This system can also have a good feature like in emergency situation such as when there is need to change red light to green if there is emergency vehicle want to pass by.

Keyword: smart city, Conventional traffic light, Waterfall model, Artificial Intelligence, Rule-based

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